WHAT IS CLAIMED IS:

1. A stereo image measuring device comprising:

a setting unit for setting, regarding a stereo image including at least three or more points of measurement having position data thereof obtained, at least a part of the points of measurement as division points, and then setting a search area based on at least three division points selected from a plurality of the set division points;

an arithmetic operation unit for executing correlation processing for images of search areas corresponding to each other on the stereo image based on the search area set by the setting unit; and

a measuring unit for measuring a coordinate of a point in a given position from a result of the correlation executed by the arithmetic operation unit.

2. The stereo image measuring device according to claim 1, wherein the setting unit assumes that three division points selected from the obtained division points form a division triangle, and sets a search area based on the division triangle.

3. The stereo image measuring device according to claim 1, wherein the setting unit sets, in each stereo image, an inclusion square including a triangle composed of three adjacent points selected from the obtained division points, alternatively from points of measurement, as a search area.

4. The stereo image measuring device according to claim 1,

wherein

the setting unit selects points of measurement in an area where detailed division is required as new division points according to the result of the correlation processing executed by the arithmetic operation unit, and then sets new search areas on the stereo image, and

the arithmetic operation unit executes correlation processing for images of the new search areas.

5. The stereo image measuring device according to claim 1, wherein the setting unit sets a reference data block in the search areas of one image of the stereo image, and a search data block in the search areas of the other image of the same, and then sets a position, alternatively a moving step of each data block according to a distance from the division point.

6. The stereo image measuring device according to claim 1, wherein the setting unit sets a reference data block in the search areas of one image of the stereo image, and a search data block in the search areas of the other image of the same, and then sets a size of each data block according to a distance from the division point.

7. The stereo image measuring device according to claim 1, wherein the setting unit sets a reference data block in the search areas of one image of the stereo image, and a search data block in the search areas of the other image of the same, sets a plurality of data blocks having different sizes in the vicinity of the division point, obtains a result of correlation, and then decides a size of each data block according to the result of the

correlation.

8. The stereo image measuring device according to claim 1, wherein the setting unit sets a reference data block in the search areas of one image of the stereo image, and a search data block in the search areas of the other image of the same, and decides a size of each data block according to a size of each search area.

9. The stereo image measuring device according to claim 1, wherein

the setting unit sets a data block based on the set search area, the data block being smaller than the search area, and

the arithmetic operation unit sets a block equivalent to a data block of one image of the stereo image as a template, scans the other image of the stereo image in a vertical position similar to that of the template, and searches a data block corresponding to the template based on a calculated correlation value.

10. The stereo image measuring device according to claim 1, further comprising a display unit for displaying the stereo image in a graphic manner,

wherein other division points are selected according to an area determined to need additional measurement based on graphic displaying of the display unit, and the search area setting unit sets new search areas, and the arithmetic operation unit executes correlation processing for images of the new search areas.

11. A stereo image measuring device comprising:

a setting unit for setting, regarding a stereo image including at least three or more points of measurement having position data thereof obtained, at least a part of the points of measurement as division points, and then setting a search area based on at least three division points selected from a plurality of the set division points;

an arithmetic operation unit for executing correlation processing for images of search areas corresponding to each other on the stereo image based on the search area set by the setting unit; and

a measuring unit for measuring a coordinate of a point in a given position based on a result of the correlation executed by the arithmetic operation unit,

wherein the arithmetic operation unit prepares information regarding an area of measurement where a new point of measurement is required, according to the result of the correlation processing.

12. The stereo image measuring device according to claim 11, further comprising a display unit for displaying a stereo image,

wherein the display unit executes predetermined displaying for an area where additional measurement is required according to the information of the area of measurement prepared by the arithmetic operation unit.

13. The stereo image measuring device according to claim 12, wherein

the display unit displays the area where additional measurement on is required the stereo image in a graphic manner, and

position data is received when the position data of the new point of measurement in the area is measured by an external survey instrument based on the graphic displaying of the display unit.

14. The stereo image measuring device according to claim 11, wherein the measuring unit outputs the information of the area of measurement prepared by the arithmetic operation unit to an auto-tracking total station, causes the total station to measure a position of a new point of measurement in an area indicated by the area data, and then receives the measured position data.

15. The stereo image measuring device according to claim 11, wherein

the setting unit selects points of measurement in an area where detailed division is required as new division points according to the information of the area of measurement prepared by the arithmetic operation unit, and then sets new search areas on the stereo image, and

the arithmetic operation unit executes correlation processing for images of the new search areas.

16. The stereo image measuring device according to claim 11, wherein the setting unit sets, in each stereo image, an inclusion square including a triangle composed of three adjacent points selected from the obtained division points, alternatively from points of measurement, as a search area.

17. The stereo image measuring device according to claim 11,

wherein the setting unit sets a reference data block in the search area of one image of the stereo image, and a search data block in the other of the search areas of the other image of the same, and then sets a position, alternatively a moving step of each data block according to a distance from the division point.

18. The stereo image measuring device according to claim 11, wherein the setting unit sets a reference data block in the search areas of one image of the stereo image, and a search data block in the search areas of the other image of the same, and then sets a size of each data block according to a distance from the division point.

19. The stereo image measuring device according to claim 11, wherein the setting unit sets a reference data block in the search areas of one image of the stereo image, and a search data block in the search areas of the other image of the same, sets a plurality of data blocks having different sizes in the vicinity of the division point, obtains a result of correlation, and decides a size of each data block according to the result of the correlation.

20. The stereo image measuring device according to claim 11, wherein the setting unit sets a reference data block in the search areas of one image of the stereo image, and a search data block in the search areas of the other image of the same, and then decides a size of each data block according to a size of each search area.

21. The stereo image measuring device according to claim 11, wherein

the setting unit sets a data block based on the set search area, the data block being smaller than the search area, and

the arithmetic operation unit sets a block equivalent to the data block of one image of the stereo image as a template, scans the other image of the stereo image in a vertical position similar to that of the template, and searches a data block corresponding to the template based on a calculated correlation value.

22. A stereo image measuring method comprising:

a setting step of setting, regarding a stereo image including at least three or more points of measurement having position data thereof obtained, at least a part of the points of measurement as division points, and then setting a search area based on at least three division points selected from a plurality of the set division points;

an arithmetic operation step of executing correlation processing for images of search areas corresponding to each other on the stereo image based on the search area set by the setting unit; and

a measuring step of measuring a coordinate of a point in a given position from a result of the correlation executed by the arithmetic operation unit.

23. The stereo image measuring method according to claim 22, wherein in the setting step, it is assumed that three division points selected from the obtained division points form a division triangle, and a search area is set based on the division triangle.

24. The stereo image measuring method according to claim 22,

wherein in the setting step, an inclusion square including a triangle composed of three adjacent points selected the obtained division points, alternatively from points of measurement, is set as a search area in each stereo image.

25. The stereo image measuring method according to claim 22, wherein

in the setting step, points of measurement in an area where detailed division is required are selected as new division points according to the result of the correlation processing executed in the arithmetic operation unit, and then new search areas are set on the stereo image, and

in the arithmetic operation unit, correlation processing is executed for images of the new search areas.

26. The stereo image measuring method according to claim 22, wherein in the arithmetic operation step, information is prepared regarding an area of measurement where a new point of measurement is required according to the result of the correlation processing.

27. The stereo image measuring method according to claim 26, further comprising a displaying step for displaying the stereo image,

wherein in the displaying step, predetermined displaying is executed for an area where additional measurement is required according to the information of the area of measurement prepared in the arithmetic operation step.

28. The stereo image measuring method according to claim 26,

wherein

in the displaying step, the area where additional measurement is requied is displayed in a graphic manner, and

when position data of a new point of measurement in the area is measured by an external survey instrument based on the graphic displaying executed in the displaying step, the position data is received.

29. The stereo image measuring method according to claim 26, wherein in the measuring step, the information of the area of measurement prepared in the arithmetic operation unit is outputted to an auto-tracking total station, the total station is caused to measure a position of a new point of measurement in an area indicated by the area data, and then measured position data is received.